IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

INTEL CORPORATION, et al.,	§	
	§	
Plaintiff,	§	**Civil No. 6:06-cv-551**
v.	§	
	§	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION,	§	
Defendant.	§	
_____	§	
MICROSOFT CORP., et al.,	§	
	§	
Plaintiff,	§	**Civil No. 6:06-cv-549**
v.	§	
	§	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION,	§	
Defendant.	§	
_____	§	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION,	§	
	§	
Plaintiff,	§	**Civil No. 6:06-cv-550**
v.	§	
	§	
TOSHIBA AMERICA INFORMATION SYSTEMS, INC., et al.,	§	
Defendant.	§	
_____	§	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION,	§	
	§	
Plaintiff,	§	**Civil No. 6:06-cv-324**
v.	§	
	§	
BUFFALO TECHNOLOGY (USA), et al.,	§	
Defendant.	§	

MEMORANDUM OPINION AND ORDER

Before the Court are Defendants' Motion for Reconsideration of the Court's Supplemental Claim Construction or to Continue (6:06-cv-550, Docket No. 635, 6:06-cv-551, Docket No. 512; 6:06-cv-549, Docket No. 563) and Buffalo's Motion to Continue (6:06-cv-324, Docket No. 382). For the reasons set forth below, both motions are **DENIED** and the Court's April 3, 2009 Opinion and Order (6:06-cv-550, Docket No. 626, 6:06-cv-551, Docket No. 506; 6:06-cv-549, Docket No. 557) is **AMENDED** in the manner set forth in APPENDIX A to this opinion.

BACKGROUND

These four cases involve U.S. Patent No. 5,487,069 (the "'069 patent"). The first of these cases was filed on February 2, 2005 by the Commonwealth Scientific and Industrial Research Organization ("CSIRO") against Buffalo Technology (USA), Inc., and Buffalo, Inc. (collectively "Buffalo"). Accordingly, the Court first construed the asserted claims of the '069 patent on May 8, 2006. *See* Memorandum and Opinion, 6:06-cv-324, Docket No. 104. Following an agreed submission on cross-motions for summary judgment, the Court granted summary judgment against Buffalo finding the patent valid and infringed. Memorandum Opinion and Order, 6:06-cv-324, Docket No. 228. Those findings were appealed to the Federal Circuit. Meanwhile, the remainder of the cases ("CIG")[1] were either filed in or transferred to this Court. While the Buffalo appeal was pending, the Court again construed the claims in the '069 patent in the CIG cases. *See* Memorandum Opinion and Order dated August 14, 2008, 6:06-cv-551, Docket No. 254 (the "August 14 order"). On October 27, 2008 the Federal Circuit remanded the Buffalo case for resolution of the issues of

[1]All parties other than CSIRO, Buffalo Technology (USA), Inc., and Buffalo, Inc. will be referred to as the Common Interest Group ("CIG").

obviousness, willfulness, and damages and affirmed this Court's judgment in all other respects. Following a status conference, the Court ordered the CIG and Buffalo cases consolidated for trial of all liability and invalidity issues. *See* Memorandum Opinion and Order, 6:06-cv-551, Docket No.378.

Following the close of discovery, CSIRO moved for summary judgment against the CIG claiming that no reasonable jury could find that the CIG did not infringe. The parties' briefing on this issue, as well as their arguments during the pretrial hearing, raised several new (or at least re-argued) claim construction issues. After identifying those issues, the Court issued a supplemental claim construction clarifying two previously-construed claim terms. *See* Memorandum Opinion on Supplmental Claim Construction, 6:06-cv-551, Docket No. 506 (the "April 3 order"). First, the Court clarified the August 14 order that the corresponding structure for the term "means to apply [a] data reliability enhancement" was "the rate ½ finite-state encoder labeled 'rate ½ TCM encoder' described in block 42 of Figure 7 and referenced at column 6:32-46 regardless of any modulation function." *Id.* Second, the Court clarified the definition of "the significant ones of non-direct transmission paths" to mean "reflected transmission paths with sufficient signal magnitude to impair the reception of transmitted symbols in typical indoor environments." *Id.* Neither the August 14 claim construction opinion nor the April 3 order issued in the Buffalo case.

In response to the April 3 order, the CIG filed the present motion requesting that the Court reconsider its supplemental claim construction or, alternatively, grant a continuance. Buffalo filed a similar motion requesting a continuance and (though not specifically requested in the motion) reconsideration of the supplemental construction. A two and one-half hour hearing on the motions was held on April 8, 2009.

APPLICABLE LAW

Motions for reconsideration are made pursuant to Rule 59(e), which allows a motion to alter or amend a judgment. *See Patin v. Allied Signal, Inc.*, 77 F.3d 782, 785 n.1 (5th Cir. 1996). Reconsideration motions must "clearly establish either a manifest error of law or fact or must present newly discovered evidence." *Ross v. Marshall*, 426 F.3d 745, 763 (5th Cir. 2005) (quoting *Pioneer Natural Res. USA, Inc. v. Paper, Allied Indus. & Energy Workers Int'l Union Local*, 328 F.3d 818, 820 (5th Cir.2003)). The motion "cannot be used to raise arguments which could, and should, have been made before the judgment issued." *Id.* A court abuses its discretion in denying a motion to reconsider only if it "bases its decision on an erroneous view of the law or on a clearly erroneous assessment of the evidence." *Id.*

APPLICATION

The "DRE Means" Limitation

The CIG contends that the Court made numerous clear errors of fact and law in its April 3 order. First, the CIG argues that "it is well settled and beyond dispute" that the "rate ½ trellis-coded modulation (TCM) encoder (42)" disclosed in the specification contains both coding and mapping functions. To support this argument, the CIG attaches declarations by their experts along with deposition testimony by CSIRO's experts opining that TCMs generally and always include integrated coding and mapping functions. *See e.g.*, Bims Dec. ¶¶ 5-25 (opining that TCM integrates coding and mapping functions); Williams Dec. ¶¶ 8-14 (opining TCM always integrates coding and mapping functions); Percival Dep. at 127:22-129:2 (Kamber Dec. Ex. C-D) (recalling the differences between TCM and convolutional encoding). However, none of this evidence addresses the central issue decided in the Court's April 3 construction: whether the corresponding structure to the data

reliability enhancement (DRE) means limitation included only a forward error correction (FEC) coding structure or included both an FEC coding structure and a mapping structure.

Again, evidence that TCM generally, mostly, or even always includes structure that integrates both a coding and a mapping scheme does not necessarily imply that the '069 patent teaches that all of the structure included for implementing the coding and mapping abilities of TCM are linked to performing the DRE function. By way of analogy, simply because all knives have handles does not make the handle essential to the knife's cutting function. In fact, as resolved in the April 3 order, one skilled in the art would understand that the structure included in the "½ rate TCM encoder (42)" that achieves DRE is only a structure that provides a FEC coding function. The intrinsic evidence leading to that conclusion is set forth in the April 3 order. Thus, the CIG's evidence that TCM "always" includes mapping is as irrelevant to the construction issue as it is to the present motion. The Court has not made an error of fact, it has simply construed a claim in light of the specification.

The CIG also cites the '069 patent columns 9:66-10:2 for the proposition that TCM having combined coding and modulation provides improved error correction capability. *See* Defendant's Motion, 6:06-cv-551, Docket No. 512 at 3. Oddly, this is the very same portion of the specification noted in the April 3 order that distinguishes TCM (including its modulation ability) as a potential way to achieve "improved" error correction over the structure that is originally linked to DRE. Defendants wrongly interpret this portion of the specification as the statement linking both modulation and coding in TCM to a DRE function, when the specification clearly discusses DRE embodiments for most of the preceding paragraphs. As explained in the April 3 order, the specification discusses TCM (identifying integrated coding and mapping) as a possible extension of DRE, thus eliminating a TCM structure (specifically its "integrated mapping structure") as the

disclosed structure necessarily linked to DRE. It is only a further embodiment of DRE, not the disclosed structure necessary for DRE.

Second, the CIG contests the Court's analysis that the "di-bit interleaver (43)" provides any evidence that the DRE means structure excludes mapping. However, the distinction between a "di-bit interleaver" and a "symbol interleaver" is drawn directly from the CIG's own expert testimony. As explained in the April 3 order, CIG experts Doctors Bims and Williams both cite to a paper comparing TCM with bit-interleaved coded modulation ("BICM") forms of orthogonal frequency-division multiplexing ("OFDM") transceivers. *See* Bims Decl. Ex. 9, 6:06-cv-551, Document No. 374-32. In fact, Dr. Bims references the paper noting that the differences between convolutional encoding (including only a coding function) and TCM encoding (including both coding and mapping) "are well known and substantial." Bims Decl., 6:06-cv-551, Document No. 374-23 at ¶ 58. That paper shows, not only the separation of the coding and mapping function of a TCM encoder (in the TCM transceiver), but also the output of that encoder flowing to a "symbol interleaver." *See* Bims Decl. Ex. 9, 6:06-cv-551, Document No. 374-32 at 2, Fig 2. The paper then compares that system to a BICM system and signifies a "bit-interleaver" downstream from a convolutional encoder. *See id.* at 4, Fig. 6.

As discussed in the April 3 order, this evidence is an indication that it is "well known" to those skilled in the art that TCM output (including mapping) flows to "symbol interleavers" while finite-state encoders (such as a convolutional encoder) output will flow to "bit-interleavers." The Court is entitled to rely on the CIG's "well known and substantial" distinctions between TCM and other finite-state encoder outputs when interpreting the claim terms. Importantly, the CIG has not provided any supplemental evidence suggesting that a di-bit interleaver necessarily is downstream

from only a TCM encoder (including mapping) and no other type of finite-state encoder. *Cf.* 6:06-cv-551, Docket No. 512 (Bims Dec. at ¶¶ 16-18; Williams Dec. ¶ 12; Stark Dec. Docket No. 512-4 at ¶ 9). Thus, with respect to the evidence presented by the CIG, no factual error has been shown.

Along these same lines, the CIG cites the '069 patent's column 10:29-30 as signifying that the di-bit interleaver (43) is actually a symbol interleaver because the specification describes its input as "modulated by successive encoder output dibits." The CIG mischaracterizes this portion of the specification. The specification only relates that quadrature phase-shift keying ("QPSK") modulation on a 12 carrier ensemble (downstream of the di-bit interleaver) can use the described interleaving scheme as a suitable approach. *See* '069 patent at 10:26-28. The CIG's cropped quote is misleading. The description is simply that the carriers are modulated by the QPSK block 44 in accordance with the bit patterns applied to it from the interleaver 43. *Id.* The carriers are modulated in accordance with the mapping pattern of the QPSK block 44. However, the specific data directing the modulator is bits streaming from the interleaver. The sentence describes the function of the QPSK on the carriers and not the character of the output from the interleaver.

Third, the CIG argues that the Court erroneously relied upon "differential (by frame) QPSK encoder (44)" in Figure 7 in determining that mapping was not an essential structure to the DRE means. The essential argument is that the mapping performed by the QPSK encoder is different than the mapping performed by a TCM encoder. *See* CIG's Motion, 6:06-cv-551, Docket No. 512 at 4-5. This argument fails to rebut or address any analysis in the Court's April 3 order. The CIG does not contest that mapping is performed by the "QPSK encoder (44)" downstream of the "½ TCM encoder (42)." It does not deny that the specification never discusses mapping as being part of forward error correction ("FEC") or DRE. The CIG provides no evidence, or even argument, contrary to the

Court's analysis that DRE is performed functionally by finite state encoding and that mapping (not essential to DRE) is performed by the downstream QPSK encoder. That a particular embodiment using a TCM encoder (performing both coding and mapping functions) would, in essence, modulate in two different ways is irrelevant. The Court's April 3 construction makes clear that mapping is unnecessary to the DRE means function and that "differential (by frame) QPSK encoder (44)" (performing a mapping function) being downstream of a finite state encoder is consistent with that interpretation.

Next, the CIG makes the incredible argument that the "statement in the '069 specification that 'combined coding and modulation schemes, such as trellis-coded modulation (TCM), [] give . . . improved error correction capability' is neither superfluous *nor intended to contrast* TCM against the patent's discussion of Figure 7." 6:06-cv-551, Docket No. 512 at 5 (emphasis added). Three sentences later, the CIG notes that the patent "refers to TCM as 'combing [sic] coding and modulation' and providing 'improved error correction capability' *in contrast* with such conventional encoding schemes." *Id.* (emphasis added) The CIG acknowledges that the preceding paragraphs in the specification all address FEC and DRE in various other embodiments.

In fact, during the hearing the CIG relied heavily on the Court's August 14 claim construction opinion analyzing the specification's recital that data in a binary phase-shift keying (BPSK) embodiment "is encoded using a conventional forward error correction scheme such as, but not restricted to Reed-Solomon or convolutional coding." '069 Patent at 9:36-40. At that time, and as recited in the Court's April 3 construction, the dispute was whether a convolutional encoder *was* the structure linked to the DRE means. *See* 6:06-cv-551, Docket No. 254 at 21. The Court found that the statements in column 9:36-40 did "not clearly link a convolutional encoder to the recited function

and does not indicate a rate ½ TCM encoder includes a convolutional encoder." *Id.* The CIG now argues, based on that statement, that the Court has decided that column 9:36-40 is meaningless in the specification and can provide no evidence concerning the function corresponding to a DRE means. That is clearly not the case. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) ("the specification is 'always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.") (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

Now, the claim construction dispute surrounds whether both the FEC coding structure and the mapping structure of "rate ½ TCM encoder (42)" are both linked to the DRE means. Column 9:36-40 are highly relevant to this dispute because they disclose other forms of coding (without mapping) that perform FEC and ultimately DRE. The only part of the specification that mentions a mapping capability in relation (or even in proximity) to error correction is the statement identified in the April 3 order that "[i]t is also possible to use combined coding and modulation schemes such as [TCM] to give improved bandwidth efficiency and improved error correction." '069 patent 9:66-10:2. As discussed in the April 3 order, at best this statement shows that the modulation capability of a TCM encoder can provide "improved bandwidth efficiency" along with the "improved error correction" that stems from its coding capability. Further, as the CIG's own reading of the statement acknowledges, the statement distinguishes TCM (with integrated and coding and mapping functions) as an "improved" embodiment of the coding schemes discussed in the preceding paragraphs. If integrating coding and mapping "improves" upon the DRE capabilities of traditional coding schemes (without mapping), then integrating coding and mapping schemes cannot be, and are indeed *contrasted to*, the essential structure linked to DRE. The CIG's own briefing shows that the

specification makes that distinction. Thus, the CIG's "factual"[2] objections to the Court's April 3 interpretation of the specification are overruled.

Next, the CIG makes several legal objections to the Court's supplemental construction. First, the CIG contends that the term "finite-state encoder" is not found structurally or conceptually in the patent. This argument is incredibly disingenuous considering that the term was first applied to the class of encoders (such as Reed-Solomon, convolutional encoders, and TCM encoders) described in the '069 patent by the CIG. *See* 6:06-cv-551, Docket No. 374-23 at ¶ 52 (Bims Decl.). The CIG expert Dr. Bims stated that "any person of ordinary skill in the art would know, there are many finite-state encoder structures other than the linear, time-invariant convolutional encoder. Any one of these finite-state encoders could be used instead of a convolutional encoder within an overall TCM encoder structure." *Id.*

Therefore, the CIG's extrinsic evidence confirms what the '069 patent specification suggests: that one skilled in the art would at least understand that "rate ½ TCM encoder (42)" contains a finite-state encoder and that the encoding capability of that finite-state encoder is linked to DRE means. *See Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1378-79 (Fed. Cir. 1999) (holding that the determination of whether sufficient structure is disclosed in the specification to support a means-plus-function limitation is based on the understanding of one skilled in the art). The CIG's position now, that one skilled in the art would not understand a TCM encoder to include a finite-state

[2] Though the CIG characterizes these objections as "factual," the Court notes that none of the arguments presented raised disputed issues of fact. Rather, as discussed, the CIG presented arguments concerning the meaning, interpretation, and scope of the claims in light of the specification. In fact, the only "factual" issue raised during the 2 ½ hour hearing on this motion was the parties' stipulation that a TCM encoder has distinct coding and mapping capabilities. The remainder of the hearing focused on the intrinsic evidence linking coding or mapping structures to the DRE means. *See, e.g.*, *Catalina Mktg Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 807 (2002) (explaining that courts must review the specification when performing their legal duty to construe the scope of claims).

encoder, is contrary to its arguments, evidence, and position in its response to CSIRO's summary judgment motion. *See* FED. R. CIV. P. 11(b)(3)-(4); Defendant's Response to CSIRO's MSJ, 6:06-cv-551, Docket No. 374; *see also* Defendants Motion, 6:06-cv-551, Docket No. 512 at 7 ("It is undisputed that a TCM encoder *must* include a finite state-state encoder and a mapper.") (emphasis in original). Regardless, given the specification and the evidence presented to the Court by the CIG regarding the understanding of those skilled in the art, the Court was correct in resolving the claim dispute presented in the summary judgment motions by referring to "finite-state encoders."

The CIG next contends that the Court improperly subdivided the capabilities of a "rate ½ TCM encoder (42)" in order to resolve the parties' construction dispute. For this proposition, the CIG cites to the statement in *Odetics, Inc. v. Storage Technology Corp.*, that "individual components, if any, of an overall structure that corresponds to the claimed function are not claim limitations. Rather, the claim limitation is the overall structure corresponding to the claimed function." 185 F.3d 1259, 1268 (1999). The CIG takes this quotation out of context. First, the quoted language refers to an equivalency analysis under 35 U.S.C. § 12 ¶ 6 after a determination of claimed structure has been made. *See id.* The case does not hold that a Court may not peer into a generalized structure through the eyes of one skilled in the art to determine what particular structure is linked to performing the recited function. Here, as in *Toro Co. v. Deere & Co.*, the Court has not engaged in a component-by-component analysis, nor has it peered further into the structure linked to the DRE means function than the specification will support as understood by one skilled in the art. *See* 355 F.3d 1313, 1324. The Court has been careful to resolve the parties' construction dispute, as has been discussed here and the April 3 order, defining the corresponding structure of DRE means only to the extent supported by the specification.

The "Significant Ones" limitation

The CIG argues that the Court's April 3 construction of "significant ones of non-direct transmission paths" leads to the indefiniteness of the claims. Contrary to the CIG's suggestion, the Court's April 3 clarification narrowed the claim term rather than broadened it. The CIG's motion for summary judgment argued that the term was indefinite because there is no objective standard to determine the "significance" of a non-direct transmission path. *See* Defendant's MSJ on Invalidity, 6:06-cv-551, Docket No. 216. That argument was rejected twice—once in the April 8 claim construction opinion and again in the denial of the CIG's motion for summary judgment.

As explained in the April 3 order, the CIG's briefing "interpreted" the Court's previous construction of "the significant ones of non-direct transmission paths" to require that a symbol period "avoid any impairments" of the reception of transmitted symbols by reflected transmission paths of sufficient magnitude. CIG's Opposition Brief, 6:06-cv-551, Docket No. 374-23 at 13 ¶ 31-32 (Bims Decl.). The Court's supplemental construction only clarified (though it was sufficiently clear in the original construction) that the claim language only required that the symbol period avoid impairment in "typical indoor environments." For the third time, and for the same reasons expressed in the previous two, the claim is not made indefinite by this limitation.[3] The April 3 order merely

[3] As stated in the August 14 order:

> The art is such that it is impossible to determine, for every potential environment, which multipath transmissions are significant and their associative delay times with any mathematical precision, and such a precise determination is not required to save the claims. *See Exxon*, 265 F.3d at 1378–79 (holding claim limitation "for a period sufficient" was not indefinite, as specification disclosed ranges where the period was usually and preferably sufficient, and concluding the patentee expressed the claim limitation in reasonable terms in light of the subject matter, as the period would vary in different conditions). The relevant literature identifies multiple delay spread calculations and measurements for different system designs, environments, and frequency bands. *See, e.g.*, Rappaport Declaration, Ex. 3, at 972, 975, 976; *id*. at Ex. 7, at 93; *id.* at Ex 12, at 18, 19; *id.* at Ex.13, at 1302–05; Ex. 14, at 320–324. These values are objectively measurable and not completely dependant on a skilled artisan's subjective opinion. *See Datamize*, 417 F.3d at 1350. Ultimately, a skilled artisan would take the measured, calculated, or assumed predetermined period

clarified that "significant ones" are clearly referenced in the specification as referring to "typical indoor environments." Rather than broaden the scope of the claim language, this clarification clearly narrows the scope of this limitation.[4]

Continuance

Finally, the CIG argues that it is alternatively entitled to a continuance in order to revise its expert opinions, non-infringement, and invalidity contentions in light of the amended claim constructions. The decision to grant a continuance is a discretionary one. *See Streber v. Hunter*, 221 F.3d 701, 736 (5th Cir. 2001). During the hearing, the CIG acknowledged that the Court had the ability and a duty to revise its claim construction whenever it recognized a bona fide dispute over the scope of the claims. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008); *see also Caddy Prods., Inc. v. Am. Seating Co.*, No. 05-800 JRT/FLN, 2008 WL 2447294 at *2 n.3 (D. Minn. June 13, 2008) (noting that further construction is necessary "[i]f it becomes apparent . . . that the dispute as to the scope of claim terms has not been definitively resolved . . ."). The CIG suggests that the Patent Rules would allow them 50 days to amend invalidity contentions in light of a claim construction ruling. *See* P.R. 3-6(a). In light of this, the CIG sees injustice in the Court's amendment of its claim construction on the eve of trial.

As previously explained by this Court, the purpose of the local patent rules is to effectuate an orderly and efficient pretrial process. *STMicroelectronics, Inc. v. Motorola, Inc.*, 307 F. Supp.

> representative of the time delay of significant multipath transmissions and design the sub-channel symbol duration to maintain a minimum BER in near worst-case environments. Andrews Declaration, at 6.
>
> August 14 Claim Construction, 6:06-cv-551, Docket No. 254 at 26-27

[4] Needless to say, this "narrowing" is largely superficial because the clarification of the "significant ones" limitation provided in the April 3 order was implicit in the original claim construction.

2d 845, 849 (E.D. Tex. 2004) (Davis, J.). "This does not mean that after every claim construction order, new invalidity contentions may be filed. That would destroy the effectiveness of the local rules in balancing the discovery rights and responsibilities of the parties . . . ." *Finisar Corp. v. DircTV Group, Inc.*, 424 F. Supp. 2d 896, 901 (E.D. Tex. 2006) (Clark, J.). Here, the parties had ample opportunity to identify their dispute as one of claim construction rather than fact. The Court has comparatively little opportunity to identify the fundamentally disputed issues in a case. It is only after the parties have continuously conferred and discussed, in detail, their respective positions that the Court even becomes aware of the nature of a dispute through filed motions. The initial duty and responsibility to distinguish between disputed issues of fact and law ultimately falls upon the parties.

It was incumbent upon the CIG to recognize, before even filing their response to CSIRO's motion for summary judgement, that it had differing views concerning the scope of the asserted claims. The CIG articulated in its response to CSIRO's summary judgment motion, as well as at the pretrial hearing, that it believed that the corresponding structure of "½ rate TCM encoder block 42" included an integrated finite state encoder and a non-binary modulator that both influenced the way the DRE function was achieved. *See* Defendants Response, 6:06-cv-551, Docket No 374. CSIRO clearly contested that interpretation. The existence of this dispute was not a "surprise" to either CSIRO or the CIG. Further, the parties' dispute regarding the "significant ones" limitation was based on Defendants' "interpretation" of the Courts' August 14 claim construction. *See* CIG's Opposition Brief, 6:06-cv-551, Docket No. 374-23 at 13 ¶ 31-32 (Bims Decl.). This interpretation was also disputed by CSIRO.

Additionally, nothing in the Court's supplemental construction is "surprising." In the case of the DRE means limitation, the Court merely adopted CSIRO's position and incorporated it into

the claim construction. In the case of the "significant ones" limitation, the Court merely altered its construction to conform with explanations it had already provided in its original August 14 construction. Further, neither the CIG or Buffalo has "adequately explain[ed] how the Court's definition of any of the terms in dispute [or the existence of the dispute] was so surprising, or differed so greatly from the proposals made by the parties" that it justifies continuing a jury trial that has been scheduled for two years. *See Finisar Corp.,* 424 F. Supp. 2d at 901. It is also instructive that, during the hearing, while the the CIG maintained that there was no claim construction dispute, they discussed intrinsic evidence and claim interpretation arguments for nearly two hours. For these reasons and because of the parties' shared culpability, the Court finds no cause to grant the CIG's request for a continuance.

There is no reason why these issues could not have been brought to the Court's attention during, or even prior to, the pretrial hearing. The parties' failure to do so has resulted in the present situation. Nothing in this opinion should be read to hold CSIRO blameless. In some instances, issues of claim construction are resolved in favor of Defendants, in others, they fall in favor of Plaintiffs. *See, e.g.*, *Fenner Investments, Ltd. v. Microsoft Corp.*, 6:07-cv-8, Docket No. 331 (Order Granting Summary Judgment in favor of Defendants). Here, the Court has found in favor of CSIRO's claim interpretations. Far better for all that these issues be resolved now than during trial after parties have presented to the jury erroneous claim interpretations as facts.

Finally, and relatedly, Buffalo requests severance and a continuance in light of the Court's April 3 order. The order did not issue in the Buffalo case because matters of claim construction have been finally resolved by the Federal Circuit. As a result, the CIG claim construction and the Buffalo claim construction are different. Since the Court's December 23, 2008 consolidation order, Buffalo

has proceeded with knowledge that their remaining defenses would be tried contemporaneously with the CIG, and pretrial filings indicate that Buffalo has elected to try its defenses as part of the CIG, relying on the CIG, experts and relying upon the CIG claim construction of August 2008.[5]

Buffalo concedes that it "modified its entire trial strategy in light of the December [consolidation order]" and "intends to rely on the testimony of its co-defendants experts plus cross examination to put on its case." Buffalo's Emergency Motion, 6:06-cv-324, Docket No. 382 at 6. Buffalo has not raised any objection to the posture of its case that it could not have raised prior to the December 23 consolidation order, or after it. Neither has it identified any particular issues over which it is prejudiced. Buffalo may not elect to adopt a favorable claim construction, then object when that same construction is modified. Such pick-and-choose litigation tactics are not permitted. Buffalo's objections to proceeding with multiple claim constructions have been waived. *Silvercreek Mgmt., Inc. v. Banc of Am. Sec.*, 534 F.3d 469, 473 (5th Cir. 2008) (finding that failure to raise due process objections with "factual detail and particularity" constitutes waiver).

Finally, the Court's April 3 order is amended in light of the parties' stipulation during the hearing that "½ rate TCM encoder (42)" contains both a mapping and coding ability. No analysis or claim definitions in that order are amended. Rather, the order is only amended to clarify that the parties' claim construction dispute centered over the relevance of the mapping ability of a TCM encoder to the DRE means limitation and not its existence. The amendments are merely clerical.

CONCLUSION

In light of the foregoing, the CIG's Motion to Reconsider or Continuance is **DENIED**,

[5] *See, e.g.,* Transcript of Status Conference December 16, 2008, 6:06-cv-551, Docket No. 376 at 30:23-32:5 (CIG offering, and Buffalo agreeing, to proceed with CIG).

Buffalo's Motion for Continuance is **DENIED**. The Court further **ORDERS** that the Court's April 3 order be amended as set for in APPENDIX A of this opinion.

So ORDERED and SIGNED this 9th day of April, 2009.

LEONARD DAVIS
UNITED STATES DISTRICT JUDGE

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

INTEL CORPORATION, et al.,	§	
	§	
Plaintiffs,	§	**Civil No. 6:06-cv-551**
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APPENDIX A
AMENDED APRIL 3, 2009
MEMORANDUM OPINION AND ORDER
REGARDING SUPPLEMENTAL CLAIM CONSTRUCTION

Before the Court is the Commonwealth Industrial and Scientific Research Organization's (CSIRO's) Motion for Summary Judgment of Infringement (6:06-cv-549, Docket No. 384; 6:06-cv-

550, Docket No. 450; 6:06-cv-551, Docket No. 333) ("MSJ"). After review of the motion and responses, it is apparent to the Court that the parties have raised claim construction disputes that were not raised during the Claim Construction hearing, but nevertheless need to be resolved prior to trial. Accordingly, the Court provides the following supplemental claim construction to resolve these issues prior to trial. In light of these supplemental claim constructions, CSIRO's MSJ is **DENIED AS MOOT,** but the Court will revisit the issues raised therein at an appropriate time during trial in light of the evidence and arguments presented.

BACKGROUND

The relevant facts and an explanation of the technology of these cases have been fully set forth in this Court's August 14, 2008 claim construction opinion. *See* Memorandum Opinion and Order, 6:06-cv-551, Docket No. 254 ("Claim Construction Opinion"). These three cases all involve U.S. Patent No. 5,487,069 (the "'069 Patent"). The cases have been consolidated for jury trial on all issues of liability. Following the close of discovery, CSIRO moved for summary judgment against Defendants,[6] claiming that no reasonable jury could find that Defendants did not infringe. The parties' briefing on this issue raise several new (or at least re-argued) claim construction issues, which need to be resolved by the Court. Accordingly, the Court resolves these claim construction issues as stated below.

APPLICABLE LAW

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.' " *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys.*, Inc., 381

[6] For ease of reference, all parties other than CSIRO will be referred to as "Defendants."

F.3d 1111, 1115 (Fed. Cir. 2004)). When the parties raise an actual dispute regarding the scope of these claims then the court, not the jury, has a duty to resolve that dispute. *O2 Micro Intern. Ltd. v. Beyond Innovation Technology Co.*, Ltd., 521 F.3d 1351, 1360 (Fed. Cir. 2008).

In claim construction, courts examine the patent's intrinsic evidence to define the patented invention's scope. *See id.*; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). This intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312-13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can also aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.*

Additionally, "claims 'must be read in view of the specification, of which they are a part.'" *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own

terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316.

Where a claim limitation is expressed in "means plus function" language and does not recite definite structure in support of its function, the limitation is subject to 35 U.S.C. § 112, ¶ 6. *Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). In relevant part, 35 U.S.C. § 112, ¶ 6 mandates that "such a claim limitation 'be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.'" *Id*. (citing 35 U.S.C. § 112, ¶ 6). Accordingly, when faced with means-plus-function limitations, courts "must turn to the written description of the patent to find the structure that corresponds to the means recited in the [limitations]." *Id*.

Construing a means-plus-function limitation involves multiple inquiries. "The first step in construing [a means-plus-function] limitation is a determination of the function of the means-plus-function limitation." *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). Once a court has determined the limitation's function, "the next step is to determine the corresponding structure disclosed in the specification and equivalents thereof." *Id*. A "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id*. Moreover, the focus of the "corresponding structure" inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is "clearly linked or associated with the [recited] function." *Id*.

APPLICATION

Means to Apply [a] Data Reliability Enhancement (the "DRE limitation")

Claims 10, 26, and 42 contain the term "means to apply [a] data reliability enhancement" ("DRE"). The Court's previous construction of this term specified that its function was "to apply a data reliability enhancement to said data passed to said modulation means" and its corresponding structure was the "rate ½ TCM (trellis coded modulation) encoder described in block 42 of Figure 7 and referenced at column 6:32-46." Claim Construction Opinion at 18, 21, 32. The parties' dispute at the time of that opinion was only whether the "corresponding structure includes a convolutional encoder." *Id.* at 19. While the Court stated that "the specification does not disclose as corresponding structure a convolutional encoder as part of the "rate ½ TCM encoder (42)," the Court did not decide whether a convolutional encoder was equivalent to or could be a part of a "rate ½ TCM encoder." *Id.* at 20. The Court only held that "the corresponding structure for the 'means to apply [a] data reliability enhancement' is the rate ½ TCM [] encoder described in block 42 of Figure 7 and referenced at column 6:32-46." Claim Construction Opinion at 21.

CSIRO now contends in its MSJ that a "rate ½ TCM encoder" only links a convolutional encoder (the coding function of TCM) to function corresponding to DRE means. Defendants respond that a TCM encoder must include an integrated finite-state encoder (providing a coding function) and a non-binary modulator (providing a mapping function) and both are essential to the function corresponding to DRE means. However, the parties have stipulated that "½ rate TCM encoder (42)" contains a coding structure and a mapping structure. Thus, the dispute before the Court is whether the corresponding structure to the DRE means limitation included only a FEC coding structure or included both an FEC coding structure and a mapping structure. As Figure 7 itself does

not specifically describe the contents of Block 42 or the structure of a rate ½ TCM encoder, one must look to the specification and its contextual relationship with Figure 7.

As generally used in a multi-level transmission system, Trellis Coded Modulation schemes integrate a modulation scheme (mapping) with a coding scheme (finite-state coding). The coding scheme expands m bits into m+1 bits (i.e., a binary rate = m/m+1). For example, a rate ½ encoder will take one bit of input and expand it into two bits of output. Typically, a convolutional encoder is used to expand the bits. The term "trellis" refers to the ability to describe TCM schemes by a state-transition ("trellis") diagram. The coding scheme is a digital function and the modulation scheme is an analog function. The coding scheme implements Forward Error Correction ("FEC"), which provides data reliability enhancement. The modulation scheme puts the data into a particular form for transmission. Though TCM schemes "usually" or "typically" contain both coding functions and mapping functions, that fact is not dispositive. *See Honeywell Int'l, Inc. v. Universal Avionics Sys. Corp.*, 493 F.3d 1358 (Fed. Cir. 2007) ("A claim term may be defined in a particular manner for purposes of a patent even without an explicit statement of redefinition.").

Here, the patent's context and specification provide an abundance of evidence that the corresponding structure for the purposes of determining § 112, ¶ 6 equivalence is a rate ½ finite-state encoder regardless of any mapping function. First, Block 42 in Figure 7 is shown to be upstream of "quadrature phase-shift keying (QPSK) encoder (44)." '069 Patent at Figure 7. Because a QPSK encoder also performs a mapping function (i.e. mapping binary bits to phase changes in an analog carrier signal), this indicates to one skilled in the art that the "42" encoder does not necessarily utilize its own mapping function in achieving DRE.

Additionally, immediately following the "42" encoder is "di-bit interleaver (43)." A di-bit

interleaver reorders a bit-stream. Defendants' experts, Dr. Bim and Dr. Williams, both cite to a paper (Bim Exh. 9) by Li and Sun, which diagrams both TCM and bit-interleaved coded modulation (BIMC) forms of orthogonal frequency-division multiplexing ("OFDM") wireless local-area network ("LAN") transceivers. As shown in Figure 2 of that paper, the output of the TCM encoder is applied to a "symbol interleaver," which provides an output to the OFDM channel. This is consistent with the general view that TCM performs a mapping function and outputs a symbol stream, but is inconsistent with Figure 7 showing the TCM encoder (42) output being applied to a di-*bit* interleaver. If mapping is essential to DRE in TCM encoder (42), a symbol interleaver rather than a bit interleaver would be shown.

Further, the specification links the DRE function to Forward Error Correction ("FEC") and then links FEC only to coding. *See* '069 Patent at 8:9-14, 9:36-46. There is no mention of a mapping function playing a role in FEC or DRE. In fact, after completely describing Figure 7 and similar embodiments, the specification notes that "[i]t is also possible to use combined coding and modulation schemes such as trellis-coded-modulation (TCM) to give improved bandwith and improved error correction capability." *Id.* at 9:66-10:2. If TCM encoder (42) in Figure 7 already necessitated an integrated coding and modulation scheme, then this section of the specification would be superfluous.

Finally, the Defendants' own briefing supports a finding that TCM encoder (42) does not necessarily include a mapping function. As noted by Defendants, convolutional coding produces "a stream of bits that can subsequently be interleaved . . . ." Defendants' Opposition Brief, 6:06-cv-551, Docket No. 374 at 9 ("Defendants' Opposition"). Modulation occurs downstream where the mapping function converts the sequence of coded bits into "waveforms suitable for the analog

signals that are actually transmitted." *Id.* Mapping is "independent from the convolutional coding scheme." *Id*. The output of a Trellis Coded Modulator is "a sequence of symbols or signal points in a signal constellation map, each of which is represented by two or more bits. . . . In contrast, the output of a convolutional encoder is a stream of bits, not symbols representing signal points in a constellation." *Id.* at 10. A TCM device produces "coded symbol sequences." *Id.* at 9. Defendants' explanation is consistent with the di-bit interleaver (43) and the QSPK encoder (44) residing downstream of the TCM encoder (42) if the "42" encoder's mapping structure is not linked to the DRE means limitation.

Given the context provided in the specification, the "rate ½ TCM encoder" described in Block 42 of Figure 7 does not necessarily have to contain a mapping function in order to achieve DRE. Neither party disputes that a rate ½ TCM encoder must, at least, include some type of finite-state encoder in order to achieve FEC or DRE. *See* Defendants' Opposition, Bims Dec. at ¶ 48; Williams Dec. at ¶ 154; CSIRO's Reply Brief, 6:06-cv-551, Docket No. 391 at 3 n.2. Therefore, the corresponding structure for the term "means to apply [a] data reliability enhancement" for the purpose of §112 ¶6 equivalence is clarified and amended to be "the rate ½ finite-state encoder labeled 'rate ½ TCM encoder' described in block 42 of Figure 7 and referenced at column 6:32-46 regardless of any modulation function."

The Significant Ones of Non-Direct Transmission Paths

Claims 10, 26, 42, 56, and 68 contain the limitation "Modulating Data into a plurality of sub-channels comprised of a sequence of data symbols such that the period of a sub-channel symbol is longer than a predetermined period representative of the time delay of significant ones of non-direct transmission paths" ("Symbol Period Limitation"). The Court has previously construed "the

significant ones of non-direct transmission paths" to mean "reflected transmission paths with sufficient signal magnitude to impair the reception of transmitted symbols." Claim Construction Opinion at 27-28. Defendants' MSJ briefing asserts that this construction means that a symbol period must "avoid any impairment" of the reception of transmitted symbols by reflected transmission paths of sufficient signal magnitude. *See* Defendants' Opposition, Bims Dec. at 13 ¶ 31. CSIRO vigorously contests this interpretation.

The Court's previous Claim Construction opinion neither requires nor suggests that a symbol period must "avoid all impairments." In fact, the Court was clear to note that "it is impossible to determine, for every potential environment, which multipath transmissions are significant and their associative delay times with any mathematical precision, and such a precise determination is not required to save the claims." Claim Construction Opinion at 26. Further, the Court explained that "a skilled artisan would take the measured, calculated, or assumed predetermined period representative of the time delay of significant multipath transmissions and design the sub-channel symbol duration to maintain a minimum [bit-error-rate] in *near* worst-case environments." *Id.* at 27.

One skilled in the art would not understand the symbol period limitation to require that a symbol period be long enough to "avoid any impairment" in the reception of transmitted symbols. Rather, in explaining its solution to the multipath problem, the specification recites that "typical time delays due to multipath transmissions are of the order of 50 ns because of the dimensions of typical rooms." '069 Patent at 8:38-40. Accordingly, one skilled in the art would understand that the symbol period must be of sufficient length to avoid impairment in *typical* indoor environments. Thus, the definition of "the significant ones of non-direct transmission paths" is clarified and amended to mean "reflected transmission paths with sufficient signal magnitude to impair the

reception of transmitted symbols in typical indoor environments."

CONCLUSION

The Court provides this supplemental claim construction to resolve the parties' claim interpretation disputes raised in their MSJ briefings and interprets the claim language in this case in the manner set forth above. For ease of reference the complete and amended claim constructions are set forth in a table as Appendix A. CSIRO's MSJ is **DENIED AS MOOT** and the issues raised therein will be revisited at an appropriate time during trial in light of the evidence and arguments presented.

So ORDERED and SIGNED this 9th day of April, 2009.

LEONARD DAVIS
UNITED STATES DISTRICT JUDGE

APPENDIX A

Ref. Nos.	Term or Phrase to be Construed (Claims)	Court's Construction
1	confined multipath [transmission] environment [of radio frequencies] (claims 10, 26, 42, 68)	an indoor environment
2	[peer-to-peer] wireless LAN (claims 10, 11, 12, 13, 14, 15, 16, 26, 27, 28, 29, 30, 31, 32)	*No construction required*
3	antenna means (claims 10, 26, 32,42, 48, 68)	a structure for radiating or receiving radio waves
4	means to apply [a] data reliability enhancement (claims 10, 26, 42)	Function: to apply a data reliability enhancement to said data passed to said modulation means Structure: the rate ½ finite-state encoder labeled 'rate ½ TCM encoder' described in block 42 of Figure 7 and referenced at column 6:32-46 regardless of any modulation function.
5	blocks (claims 10, 26, 42, 68)	a block of data having one or more bits
6	significant ones of non-direct transmission paths (claims 10, 26, 42, 68)	reflected transmission paths with sufficient signal magnitude to impair the reception of transmitted symbols in typical indoor environments
7	transmission signal processing means (claims 10, 16, 26, 32, 42, 48, 68)	*No construction required*
8	modulation means for modulating input data of said input data channel into a plurality of sub-channels comprised of a sequence of data symbols such that the period of a sub-channel symbol is longer than a predetermined period representative of the time delay of significant ones of non-direct transmission paths (claims 10, 26, 42, 56, 68)	Function: modulating input data of said input data channel into a plurality of sub-channels comprised of a sequence of data symbols such that the period of a sub-channel symbol is longer than a predetermined period representative of the time delay of significant ones of non-direct transmission paths. Structure: the Complex FFT (Fast Fourier Transform) Based Modulator in block 32 of Figure 6, executing the 16 Point Complex IFFT (Inverse Fast Fourier Transform) of block 47 of Figure 7, as referenced at column 6:23-31.